

**MICROFLUID EJECTION DEVICE HAVING  
EFFICIENT LOGIC AND DRIVER CIRCUITRY**

**ABSTRACT OF THE DISCLOSURE**

A semiconductor substrate for a microfluid ejection head. The substrate includes a plurality of fluid ejection actuators disposed on the substrate. A plurality of driver transistors are disposed on the substrate for driving the plurality of fluid ejection actuators. Each of the driver transistors have an active area ranging from about 1000 to less than about 15,000  $\mu\text{m}^2$ . A plurality of logic circuits including at least one logic transistor are coupled to the driver transistors. The driver and logic transistors are provided by a high density array of MOS transistors wherein at least the logic transistors have a gate length of from about 0.1 to less than about 3 microns.

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